

coordination data for ATPC radios include the maximum transmit, coordinated transmit, and nominal transmit power levels.⁴⁸

The primary area of concern expressed by Pacific Bell, RCCMC, TSGI and UTC is how ATPC systems will be coordinated. RCCMC, TSGI, and UTC advocate using the maximum transmitter power to calculate interference from an ATPC system into foreign systems.⁴⁹ Pacific Bell wants a simplified procedure where any ATPC system can use a power up to 10 dB below maximum to calculate this interference, regardless of the level of ATPC activity.⁵⁰

The Bulletin 10-F procedure for ATPC (Attachment 3 hereto), which allows up to a 10 dB coordination advantage but requires some justification for claiming it, represents a middle ground between these points of view. More importantly, as detailed below, the concerns expressed by the commenters about coordinating ATPC are properly addressed by the Bulletin 10-F procedures.

RCCMC and TSGI are concerned that harmful interference may occur if ATPC systems are coordinated at a power below maximum.⁵¹ RCCMC fears that "severe cases of interference and service interruption may occur during deep fades when one transmitter powers up and others do not" and that ATPC power increases could "create a chain

⁴⁸UTC at 17; TSGI at 8.

⁴⁹RCCMC at 8-10; TSGI at 8; UTC at 17.

⁵⁰Pacific Bell at 3.

⁵¹RCCMC at 8-10; TSGI at 8.

reaction" of "[u]nnecessary increases in output power."⁵² RCCMC also fears that "a transmitter could operate at its maximum power for long periods of time."⁵³ Similarly, TSGI is concerned that power increases on ATPC systems could result in "interference levels [causing] existing systems to degrade below acceptable levels."⁵⁴

For the following reasons, TIA/NSMA believe that the Bulletin 10-F guidelines will prevent the feared interference problems:

- The text of Bulletin 10-F makes the point that fading is strongly uncorrelated among paths and that microwave paths have large fade margins. A short term 10 dB increase in interference power is insignificant in almost all cases since the likelihood of the victim path also being in a deep fade at that time is very small. All users benefit from ATPC because transmitters operate at a lower power almost all the time. Under fading conditions, ATPC paths "borrow" fade margin from other area paths that almost certainly do not need it at that instant anyway.
- The Bulletin 10-F guidelines require that ATPC systems should be equipped with an alarm that returns the transmitter to nominal power after 5 minutes at maximum power. Users claiming a coordination advantage from ATPC are required to provide path calculations showing that the path design will limit the ATPC operation to a small percentage of time annually. These requirements eliminate the possibility of ATPC power increases for long periods of time.
- Bulletin 10-F requires that a system has to detect a deep power fade before increasing transmitter power. Therefore, an increase in interference from other systems cannot cause an ATPC system to increase its power. The scenario of a chain reaction of ATPC power increases is impossible, and all ATPC power increases may be considered necessary since they are caused by deep fading.

⁵²RCCMC at 9.

⁵³RCCMC at 9.

⁵⁴TSGI at 8.

Pacific Bell states that Bulletin 10-F uses "simplified equations" that do not include important variables to calculate path reliability.⁵⁵ With regard to Pacific Bell's comments, TIA/NSMA believe that the path calculations required in Bulletin 10-F, to justify a coordination advantage for ATPC, are proper.

Moreover, Bulletin 10-F fully incorporates the industry standard Vigants reliability model with all its variables. Pacific Bell's confusion may stem from the fact that average path conditions were used in the Bulletin 10-F example calculations for the sake of simplicity. For coordination, the actual path average temperature and terrain roughness are to be used. Since it is possible to design a path in such a way that ATPC would be active much or all of the time, TIA/NSMA believe that the justification for claiming an ATPC coordination advantage required by Bulletin 10-F is necessary.

Finally, having all paths prior coordinated will ease concerns about ATPC. Under Section 4.3.2 of Bulletin 10-F, the prior coordination notice for an ATPC system must show the maximum transmit power, coordinated transmit power, and nominal transmit power. The potential victims of interference from ATPC systems will have the opportunity to review the prior coordination notices and ensure that the Bulletin 10-F guidelines are followed and that their systems are properly protected. The burden of ensuring that Bulletin 10-F guidelines are met is held by the party sending the prior coordination notice, while the party receiving the notice simply reviews it. Any questions then can be answered before applications are filed.

⁵⁵Pacific Bell at 2.

None of the concerns raised by the commenters regarding ATPC is justified. TIA/NSMA, as well as several other parties, have documented the advantages of using ATPC pursuant to Bulletin 10-F guidelines. Consequently, the Commission must adopt the TIA/NSMA recommendation that ATPC be permitted consistent with the standards set forth in Bulletin 10-F.

B. The TIA/NSMA Digital Loading Specifications Must Be Adopted, But Their Analog Loading Standards Must Be Revised.

Modulation requirements are prescribed in proposed Section 101.141. In their comments, TIA/NSMA support these standards, with the following proposed revisions:

Section 101.141 must be revised so that: (i) analog channel requirements are specified; (ii) digital modulation requirements apply to frequencies below 19.7 GHz; (iii) loading frequencies apply to commercially available equipment; (iv) digital equipment is not subject to voice channel loading requirements; (v) transmitter spike requirements are deleted; and (vi) minimum payload capacity must be per polarization. Furthermore, Section 101.721 duplicates Section 101.141 and must be deleted.⁵⁶

Little attention is paid to the loading requirements in the comments.⁵⁷ However, API expresses certain reservations:

Turning to the channel loading standards proposed in Section 101.141(a)(3), API submits that the proposed 50% payload capacity within 30 months of licensing for one DS-3 and above for bandwidths greater than 10 MHz is excessive. API urges the Commission to make these standards as flexible and unrestricted as possible. The Commission is asked to bear in mind that, in a

⁵⁶TIA/NSMA at 26 (footnote omitted).

⁵⁷DMC suggests that applicants must select the frequency bandwidth most consistent with their communication requirements, that they must be limited to one frequency pair per path, and that they must be limited on the assignment of multiple frequencies at one location to four (4) pairs. DMC at 9. These proposed restrictions should not be adopted. First, DMC fails to justify why they are needed. Second, there is no reason to limit user flexibility, especially since many carriers currently are licensed for multiple frequencies. Third, the bits/Hz spectral efficiency criteria in Section 101.141 protect against abuse.

typical POFS system, loading will vary from hop to hop, and over time. While it would be nice to custom fit each hop to actual traffic requirements, practical realities dictate that flexibility is in the public interest.

* * * * *

Flexible loading standards are driven, in part, by the need to maintain as much consistency of equipment as possible within a system. Equipment consistency improves reliability and lowers costs through (a) simplified training and testing, and (b) a simplified spare parts inventory.

* * * * *

Moreover, the loading percentage needs to be low enough that licensees do not get caught in a "catch 22" between standard sizes. For example, if an initial requirement is for 3 DS1's, and one expects to subsequently expand to 5 DS1's, and radios only come in 4 DS1's and 8 DS1's, a licensee would want the flexibility to purchase an 8 DS1 radio. If the Commission sets the minimum channel loading at 50%, it is obvious that a licensee in this example would be caught in a "catch 22" situation. In this example, an initial loading of 37.5% would be highest workable minimum.⁵⁸

TIA/NSMA agree with API that channel loading requirements should be flexible. In proposed new Section 101.141(a)(6), TIA/NSMA define when 50 percent of total DS-1 capacity is being used:

A DS-1 channel is being used when it has been connected to a DS-0/DS-1 multiplexer. For non-DS-0 services, such as, but not limited to, video or broadband data transmission, the next largest DS-1 equivalent will be considered for the computation of a loading percentage.⁵⁹

API advises TIA/NSMA that it supports this definition for when a DS-1 is "being used." If the Commission adopts this definition, API's concerns regarding channel loading requirements for digital systems would be satisfied.

⁵⁸API at 14-15.

⁵⁹TIA/NSMA, Appendix A at A-75.

API has the same misgivings regarding analog systems. Based upon typical analog system architecture, a user needs flexibility to meet applicable loading requirements so it can design its network without installing unnecessary or additional equipment and without making extensive configuration changes.

With respect to analog systems with a bandwidth of 10 MHz or above, TIA/NSMA share API's concern and recognize the need to lower the proposed minimum channel loading requirements so that needed flexibility is available. Accordingly, TIA/NSMA urge the Commission to adopt a minimum channel loading requirement for analog systems of 25% in place of the proposed 50% channel loading requirement in Section 101.141(c) of Appendix A to the TIA/NSMA Joint Comments. TIA/NSMA submit that this reduced channel loading requirement would provide the flexibility that licensees often require to meet their system design and operational needs. API advises TIA/NSMA that it agrees with this revision.

C. The TIA/NSMA Proposed Formula To Calculate Maximum EIRP for Short Paths Must Be Revised.

In their Joint Comments, TIA/NSMA recommend revising the formula in Section 101.143 to calculate maximum EIRP for short paths. This formula is more acceptable than the formula proposed in the NPRM "because it provides a more graduated reduction of power at the transmitter point and because it is based upon input from frequency coordinators."⁶⁰

⁶⁰TIA/NSMA at 43-44.

Only AT&T comments on the Commission's proposed formula. It criticizes the Commission's formula because it "sharply reduces the available EIRP where path length is just under the minimum."⁶¹ AT&T is concerned because such a "very substantial difference in available power makes the communications path between . . . antennas much less reliable and much more subject to interference."⁶² To avoid the need for waivers, AT&T proposes a new formula, which replaces the abrupt breakpoint in the Commission's formula by making the reduction in maximum EIRP gradual as path lengths become shorter.

While AT&T's proposal has substantial merit, Comsearch, which has participated actively in developing the TIA/NSMA proposal, upon further analysis, has decided that the following formula is the most appropriate:

$$\text{EIRP} = \text{MAXEIRP} - 40 * \log(A/B) \text{ dBW}$$

where

EIRP = Equivalent isotropically radiated power in dBW

A = Minimum path length from the Table for the frequency band in kilometers

B = The actual path length in kilometers⁶³

TIA/NSMA concur because, as detailed in Comsearch's Reply Comments, this formula allows reliable paths at lengths just under the minimum while more severely limiting the EIRP for very short paths. A more appropriate gradual reduction in power would result. Users could install shorter paths without having to reduce power unnecessarily. Systems with narrowband or analog channels would be accommodated. By reducing the allowable EIRP

⁶¹AT&T at 6.

⁶²AT&T at 6-7.

⁶³This formula will be submitted in Comsearch's Reply Comments in this proceeding.

on very short paths more quickly than would occur with AT&T's formula, this approach accomplishes the Commission's goal of preserving the lower frequency bands for use on longer paths and encourages use of the higher frequency bands whenever possible.

D. The Proposed Frequency Coordination Requirements Must Be Adopted.

In general TIA/NSMA support adoption of the frequency coordination requirements in Section 101.103(d) of the NPRM because it "almost completely replicates" industry standards and almost completely meets industry needs.⁶⁴ However, TIA/NSMA also propose revising the coordination process regarding: (i) when a PCN is required, so that Section 101.103(d)(2) makes it mandatory for all POFS and CC applicants to frequency coordinate; (ii) use of an oral PCN, so that Section 101.103(d)(2)(i) should require that the party making the oral PCN or response provide written documentation of such communication only upon request; (iii) reservation of growth channels, so that Section 101.103(d)(2)(xii) should not permit a licensee to hold a growth channel in reserve for up to six (6) months and, consistent with Section 21.100(d)(2)(xii), should permit reservation of growth channels provided that they must be released upon a showing of need; and (iv) the contents of the PCN, so that Section 101.103(d)(2)(ii) requires disclosure of transmission line loss data.⁶⁵

⁶⁴TIA/NSMA at 18.

⁶⁵TIA/NSMA at 19-21.

Adoption of Section 101.103 generally is supported by the commenters.⁶⁶ BellSouth, ANS, CSI, Harris, GTE, API, Comsearch and UTC all reiterate the need to clarify Section 101.103(d) so that all POFS and CC applicants must frequency coordinate new systems or "major" modifications to existing systems.⁶⁷ GTE states that the "prior coordination process, which is very effective and has proved its worth in the common carrier microwave environment for a number of years, should be extended to private microwave operations as well."⁶⁸ Pacific Bell and AT&T concur with TIA/NSMA that Section 101.103(d)(2) should specify line loss data.⁶⁹

Several parties share TIA/NSMA's concern over the proposed Section 101.103(d)(2)(xii) provisions for growth channels. Pacific Bell opposes licensing such channels.⁷⁰ UTC recommends that applicants not be permitted to use the PCN process to hoard channels or block other applicants from reasonably requesting the same channel when no other channels are available.⁷¹ AT&T disagrees with permitting licensees to

⁶⁶See BellSouth at 6-7; Pacific Bell at 5-6; AT&T at 2-5; API at 8-10; Comsearch at 7-8; DMC at 6; ANS at 3-4; Harris at 3; SBC at 11-13; GTE at 5; NYNEX at 3-4; TSGI at 5-7; UTC at 6-8; CSI at 3.

⁶⁷BellSouth at 6; GTE at 5; ANS at 3; CSI at 3; Harris at 3; Comsearch at 8; UTC at 6.

⁶⁸GTE at 5. GTE also suggests that a subsection should be added to Section 101.103, "spelling out the purposes of the prior frequency coordination process embodied in the rule. These purposes include promoting interference-free operation as well as spectrum efficient usage." *Id.* TIA/NSMA has no objection to this proposal.

⁶⁹Pacific Bell at 6; AT&T at 4.

⁷⁰Pacific Bell at 5-6. Pacific Bell also requests that the Section 101.103(d)(2)(x) provision regarding supplying information on future growth plans either be mandatory or be deleted. Pacific Bell at 6. TIA/NSMA disagree with Pacific Bell and support the currently proposed language in Section 101.103(d)(2)(x) because it provides appropriate flexibility to users.

⁷¹UTC at 6-7.

reserve growth channels for up to six (6) months.⁷² SBC argues for expanding the scope of the growth channel coordination rule to protect frequency blocks if needed.⁷³

TIA/NSMA share these concerns. In frequency congested areas, the Commission's proposed Section 101.103(d)(2)(xii)

could be used to delay, and possibly block, a competitor from providing service for a period of six (6) months. This is clearly anti-competitive and is tantamount to temporary spectrum "warehousing."⁷⁴

TIA/NSMA's proposed revision to Section 101.103(d)(2)(xii), which eliminates the 6-month holding period, is responsive to the above-referenced concerns by Pacific Bell, UTC, AT&T and SBC. It forecloses the likelihood that channels could be hoarded. Flexibility to coordinate larger blocks of spectrum would be available. Thus, the Commission should adopt the TIA/NSMA revision.⁷⁵

E. The Commission's Proposed Interference Protection Criteria Are Supported.

In Section 101.105, the Commission properly makes Bulletin 10-F the primary standard for interference protection criteria. It also allows users the flexibility to rely on other good engineering standards or on specific former Part 94 requirements as an alternative. Reliance on Bulletin 10-F is appropriate because

⁷²AT&T at 5.

⁷³SBC at 11-12. See also TSGI at 5-7.

⁷⁴TIA/NSMA at 21.

⁷⁵AT&T recommends that any oral PCN or related communications be confirmed in writing within 48 hours. AT&T at 3. This confirmation period is too short. Instead, in Section 101.103(d)(2)(i), TIA/NSMA recommend that written documentation only must be provided upon request. TIA/NSMA, Appendix A at A-46.

TIA's Bulletin 10-F is the benchmark industry standard for microwave interference protection. As the product of substantial and concerted effort by a broad range of industry participants, including numerous microwave equipment manufacturers, providers, and coordinators, the Bulletin 10-F criteria are the most accurate, up-to-date set of standards addressing this problem.

* * * * *

TIA addresses directly several issues in Bulletin 10-F that are specifically related to protecting microwave users from interference. In Bulletin 10-F, TIA revises general fixed microwave interference matters and it includes a separate annex addressing PCS-to-microwave interference based upon the Commission's new microwave channel plans adopted in the Second Report and Order, separate requirements for short-haul microwave paths, and procedures for prior coordination notice.⁷⁶

No party opposes this approach. NYNEX believes that "[d]evelopment of interference protection standards is best left to the industry and has worked well in the past."⁷⁷ RCCMC extols the virtues of the proposed standards:

The newly proposed interference criteria are up to date and appropriate to new technology, digital system processing techniques, digital modulation techniques used in today's digital microwave systems to combat interference and fading problems.⁷⁸

In addition to supporting use of Bulletin 10-F, RCCMC proposes imposing the burden for interference protection on the newest applicants and "urges the Commission to condition subsequent authorizations on a contingency basis for a sixty day period of

⁷⁶TIA/NSMA at 22-23.

⁷⁷NYNEX at 4. WMC, however, claims that the "other procedures" in Section 101.105(c)(1) for interference protection are "vague and undefined." WMC at 4. Those procedures are taken directly from Section 94.63 of the Commission's Rules, have worked well in the past, and thus are neither "vague" nor "undefined."

⁷⁸RCCMC at 7. See also ANS at 3; Harris at 2-3; CSI at 3; DMC at 6.

interference-free operation."⁷⁹ Conditioning authorization for a limited period (e.g., 60 days) would be counter-productive because oftentimes it takes longer for interference to affect another licensee's operation, for such interference to be detected, and for the affected licensee to evaluate the problem and contact the interfering licensee. Furthermore, the rules already prescribe specific procedures for resolving any problems, including cessation of service by the interfering station.

Revisions to Section 101.105 are proposed by TIA/NSMA in their Joint Comments. These revisions are: (i) analog interference noise levels must be capable of being relaxed; (ii) the "practical threshold" for interference under Section 101.105(b) must be defined; and (iii) interference resolution dispute mechanisms must be prescribed.⁸⁰ Since these revisions match industry needs, and since the record clearly indicates that Section 101.105 must reflect such needs, these revisions should be adopted.

F. A Transition Period to Part 101 Must Be Established.

A serious omission in the NPRM is the absence of a transition period from compliance with Parts 21 and 94 to compliance with Part 101:

The Commission, in the NPRM, is silent about a transition period from Parts 21 and 94 to Part 101. This failure to propose a transition period is a serious oversight. There will be significant substantive differences between certain of the new Part 101 technical rules and the corresponding Part 21 and 94 rules. These differences include the rules governing frequency coordination, interference protection, loading standards, and antenna requirements. Thus, fixed point-to-point microwave applicants, licensees, manufacturers, and other affected parties need adequate time to adjust upon adoption of the new Part 101 requirements.

* * * * *

⁷⁹RCCMC at 8.

⁸⁰TIA/NSMA at 22.

TIA and NSMA strongly recommend that the Commission specify an effective date for Part 101. All systems that are licensed and all applications (including expansions or modifications) that are pending on that effective date would be grandfathered indefinitely to meet Parts 21 and 94. Any new system subject to an application filed after the effective date would be subject only to Part 101.⁸¹

A "system" for purposes of the transition period is defined to include the originally licensed fixed point-to-point microwave system, as well as any modifications to that system. Such modifications include: (i) a change in antenna azimuth, antenna beam width, channel loading, emission, station location, antenna height, authorized power, and authorized frequencies; (ii) construction of additional links required to complete a communications network; or (iii) operationally connecting new facilities and/or frequencies.⁸²

The need for a transition period is echoed in other comments. AAR states that the proposed Part 101 does not provide for a transition period to deal with the changeover from Parts 21 and 94 and to address the status of those who will necessarily remain licensed under Parts 21 and 94 until they either apply for a license renewal or modification. The relicensing of private microwave users facing reallocation from the 2 Ghz range will speed up the transition, yet many users will still remain licensed under Part 94. A specified transition period and date of entry into force will facilitate the transition process.⁸³

API also bemoans the lack of a transition mechanism and it recommends what such a mechanism should provide:

The proposed Part 101 provides no transition mechanism from Parts 21 and 94 to the new Part 101 and, in that regard, includes no grandfather provisions for existing licensees or systems proposed in pending applications. API recommends that a transition date be set no sooner than six months following the adoption of a Report and Order in this proceeding. All systems

⁸¹TIA/NSMA at 32-33.

⁸²TIA/NSMA at 33 n.36.

⁸³AAR at 7.

authorized prior to that date and those proposed in pending applications should be grandfathered indefinitely and be afforded co-primary status with all subsequent systems authorized pursuant to the provisions of the new Part 101.⁸⁴

TIA/NSMA repeat their strong recommendation that the transition mechanism proposal in their Joint Comments should be adopted. The record demonstrates the need for such a provision. Moreover, API advises that it supports adoption of the TIA/NSMA proposal, including the right for grandfathered systems to make changes without losing that status.

In addition to grandfathering systems licensed under Parts 21 and 94, it is also critical to grandfather all equipment authorized under Part 2 for use in Part 21 and 94 systems. None of the technical requirements proposed for Part 101, that are relevant to the equipment authorization process, are new or in any way different from the corresponding Part 21 or 94 rules. Forcing equipment manufacturers to re-authorize all their equipment used in a Part 21 or 94 system to meet Part 101 would be unnecessary and unduly burdensome for manufacturers and would generate significant paper work for the Commission.

G. To Facilitate Provision Of Service, Flexible Provisions For Construction And Operation Must Be Adopted.

Several rule proposals in the NPRM affect the ability of applicants and licensees to implement service in a timely manner. These rules include: (i) the time period for completing system construction (Section 101.63); and (ii) permissible pre-licensing activities (Section 101.5).

⁸⁴API at 13.

1. Period for construction.

In Section 101.63, the Commission proposes that POFS licensees would have only 12 months from the initial grant date, and CC licensees would have until the date specified in the license, to complete construction and commence operation. It also proposes that point-to-multipoint licensees in the 10.6 and 18 GHz bands would have 18 months to complete construction.

TIA/NSMA oppose this distinction. It proposes revising Section 101.63 so that all Part 101 licensees would have the same 18 month construction period:

This extra time is critical because conditions beyond the licensee's control, such as adverse weather conditions, often limit the actual period for construction to a mere six (6) months. Furthermore, the proliferation of PCS licensees and the exodus of 2 GHz fixed licensees are expected to reduce substantially the availability of resources needed to complete construction in a timely manner. Reliable construction crews and engineers will be at a premium. Equipment shortages and shipping delays could result. Sites will be more difficult to locate and secure. Competition among PCS licensees, eager to commence service, should exert sufficient market pressure on microwave licensees to construct promptly.⁸⁵

All parties commenting on this issue support the 18 month construction period for Part 101 licensees.⁸⁶ API demonstrates that there is a real need for the longer construction period:

[I]n the interests of reducing the number of requests the Commission must respond to for extension of construction periods beyond the current 12-month period specified for most point-to-point stations, API urges that the new Part 101 provide for an 18-month construction for all stations. Construction can be delayed for myriad reasons, including inclement weather, local land use and other permit controversies, and revised budgets. API submits that the public

⁸⁵TIA/NSMA at 33-34.

⁸⁶CCPR at 6; WMC at 3; GTE at 9; SBC at 9; Harris at 3; CSI at 2-3; ANS at 3.

interest will be served by providing an 18-month period for the construction of all point-to-point and point-to-multipoint facilities.⁸⁷

UTC also advocates adoption of the 18-month construction period:

CC licensees are currently permitted up to 18 months in which to place a station in operation. UTC urges the Commission to conform the construction period for POFS licensees to 18 months as well. There are no significant differences between CC and POFS microwave facilities that would justify a different construction period. Moreover, given the significant system change-outs that will be faced by the POFS licensees in the 2 GHz band as a result of the Emerging Technologies docket (ET Docket No. 92-9), additional time for routine system construction will minimize the burden on the Commission staff in processing extension requests.⁸⁸

2. Pre-licensing activities.

Contrary to its goal of making the Part 101 rules user friendly,⁸⁹ the Commission imposes unnecessary restrictions on permissible pre-licensing activities. Pursuant to Section 101.5(d), POFS applicants could construct, but not operate, a fixed point-to-point microwave system prior to licensing. A CC applicant could do neither.

These restrictions are not well-accepted in the comments. Several parties join TIA/NSMA in seeking a revision in Section 101.5 to permit both POFS and CC applicants to at least construct prior to license grant.⁹⁰ However, other parties seek to push the

⁸⁷API at 12.

⁸⁸UTC at 9. UTC also recommends that the Commission permit large systems to benefit from extended construction schedules if the licensee "demonstrably could not be completed within the normal 18-month construction period." *Id.* at 9-10. TIA/NSMA have no objection to this proposal provided adequate criteria for defining a "large" system eligible for the extended period can be formulated.

⁸⁹NPRM at para. 21.

⁹⁰TIA/NSMA at 16; ANS at 2-3; Harris at 2; CSI at 2; AT&T at 1-2; SBC at 6-7; Pacific Bell at 4.

envelope even further by encouraging the Commission to permit construction and operation prior to licensing, provided coordination has been completed and any necessary FAA clearances have been given.⁹¹

BellSouth is the leading proponent of this liberalization of permissible pre-licensing activities:

Apparently in response to comments received in CC Docket No. 93-2, the FCC now permits applicants to commence construction and operation of common carrier point-to-point microwave radio facilities pursuant to Blanket Special Temporary Authority ("BSTA"). Under the BSTA, an applicant may construct *and operate* common carrier point-to-point microwave facilities, prior to grant of an authorization, provided:

- an FCC Form 494 has been filed and has appeared on public notice;
- construction and operation are in exact accordance with the previously filed FCC Form 494;
- final action has not been taken on the application;
- the application does not request a waiver and does not propose operation within 56.3 kilometers of any international border or within a radio "Quiet Zone;"
- Frequency coordination has been completed successfully; and
- the facility will have no significant environmental impact.

* * * * *

Given the comments submitted in CC Docket No. 93-2, the subsequent creation of the BSTA, and the need "to allow the microwave industry to operate as efficiently as possible without being hampered by obsolete regulations," BellSouth respectfully requests that proposed Section 101.5(a) be revised to allow preauthorization construction and operation on the same terms and conditions currently specified in the BSTA.

* * * * *

Alternatively, BellSouth urges the Commission to adopt the blanket licensing system it proposed in CC Docket No. 93-2. BellSouth acknowledges that

⁹¹AirTouch at 8-10; LOCATE at 4; Central at 7-8; Southern at 12-13; Entergy at 10-11; Metropolitan at 11-12; Omaha at 1.

there are questions as to whether the BSTA is lawful. Adopting BellSouth's alternative approach would eliminate such concerns. Under BellSouth's proposal, a blanket authorization would be granted only after an application has been filed and subject to public notice. This will ensure that the entity is qualified and holds a valid license. Under these circumstances, there is no need to utilize the special temporary authority mechanism, which can be reserved for emergency situations. The blanket license would allow construction and operation to commence only when certain conditions have been met. For example, any construction and operation would have to be successfully frequency coordinated to avoid potential interference. A notification (or such other form as the Commission may specify) would be filed when operation begins, ensuring an up-to-date Commission database of operational facilities.

* * * * *

BellSouth acknowledges that the Commission has made great strides in streamlining the authorization of microwave facilities, and has substantially reduced licensing delays. Nevertheless, the advent of PCS and the continued expansion of cellular systems will result in the need for hundreds of thousands of new microwave paths in the next few years. In the highly competitive wireless world, even a thirty day delay in bringing new facilities on line is too much. Accordingly, BellSouth strongly urges the Commission to adopt a mechanism that eliminates regulatory delays in bringing service to the market.⁹²

TIA/NSMA have no objection to the BellSouth proposal.⁹³ Applicants will assume the risk when building and operating the system that the license will be granted. No abuses under the BSTA program have been documented. Adequate safeguards exist because prior coordination and FAA clearance would be required and because non-compliant operation always could be stopped by the Commission.

A corollary issue is the use of temporary fixed authorizations ("TFA") to permit operation prior to licensing. To ensure that a TFA could be used under these

⁹²BellSouth at 3-4 (footnotes omitted).

⁹³See revision to Section 101.5(d) in Appendix A-1.

circumstances, CCPR recommends that the following sentence be added to the proposed Section 101.3 definition for "Temporary Fixed Station:"

Temporary fixed stations include facilities that are intended for use only until replacement facilities, including permanent microwave facilities, can be constructed and placed into operation.⁹⁴

TIA/NSMA support CCPR's proposal in concept. Despite the Commission's success at reducing the application backlog, situations requiring temporary facilities to meet customer demands still arise. For example, a CC may provide microwave facilities to meet an immediate need, but the customer has not finalized whether such facilities should be permanent or should be changed ultimately to permanent landline or fiber.

CCPR's proposal begins to address this need. However, certain important conditions on this TFA must be imposed. First, the TFA applicant must prior coordinate its proposed facilities, which is possible with the expedited PCN provisions in Section 101.103. Second, if permanent microwave facilities are required, the TFA holder must file for permanent authorization of the same or different facilities within 90 days. In addition, the applicant must prior coordinate indicating its desire for permanent authorization.⁹⁵

With the adoption of the BellSouth proposal and the CCPR proposal (as revised by TIA/NSMA), CC and POFS users will have much needed flexibility to provide service quickly without adversely affecting other users. A user which knows that the proposed facilities will be permanent could invoke the BellSouth approach. Alternatively, a user,

⁹⁴CCPR at 7.

⁹⁵See revisions to Section 101.3 and Section 101.31(b) in Appendix A-1.

which is not in a position to determine if the proposed facilities will be permanent, could take advantage of the revised CCPR proposal.

H. Rules for "Minor" Modifications Must Be Clarified.

In Section 101.103(d), TIA/NSMA propose requiring a PCN only for applications to build a new system or to implement a "major" modification of an existing system. API, however, recommends that "all changes involving the technical parameters of a station operation should be subject to frequency coordination."⁹⁶

TIA/NSMA do not consider a PCN necessary for "minor" modifications. Instead, the applicant should be required to merely "notify" all appropriate parties of its proposed "minor" modification. API advises that it agrees with this "notice" process for minor modification applications.

TIA/NSMA also propose revising Section 101.59 so that POFS licensees, as well as CC licensees, could implement a "minor" change on the 21st day after Public Notice.⁹⁷ UTC and Omaha also propose such a change.⁹⁸

I. The TIA/NSMA Equipment-Related Proposals Are Appropriate.

In their comments, TIA/NSMA support the Commission's proposals to: (i) increase the permissible transmitter power for the bands above 4 GHz to +55 dBW EIRP (Section 101.113); (ii) clarify the antenna and polarization standards (Sections 101.115 and 101.117); (iii) add frequency tolerance specifications for the 4, lower 6, and 11 GHz bands (Section

⁹⁶API at 9-10.

⁹⁷TIA/NSMA, Appendix A at A-35 to A-37.

⁹⁸UTC at 10; Omaha at 1.

101.107); and (iv) specify maximum authorized bandwidths for individual frequency bands (Section 101.109).⁹⁹

1. Increased transmitter power.

TIA/NSMA propose increasing the transmitter power EIRP to +55 dBW, which is reflected in Section 101.113. This proposal is made to improve flexibility and eliminate inconsistent current power levels.

Increasing the transmitter power level is supported in the comments. NYNEX states that it will ensure that radio users remain protected from interference.¹⁰⁰ CCPR considers the increase to be in the public interest because it will "increas[e] the reliability of facilities"¹⁰¹ Similarly, RCCMC concludes that increasing the maximum EIRP to +55 dBW would

allow for increased path reliability on long paths and . . . set a common standard for all bands. Proposed rule 101.113 eliminates the values for maximum allowable transmit power thereby allowing frequency coordination to take place using the maximum allowable power for the worst case co-channel and adjacent channel analysis, if needed.¹⁰²

Only EFJ disagrees with the Commission's conclusion that a uniform, higher transmitter EIRP is appropriate:

[T]he Commission must review its proposal to increase current transmitter power limitations. Careful studies should be conducted to determine the extent to which the potential for interference will be increased. [I]ncreasing the power limitations may result in a significant increase in interference

⁹⁹TIA/NSMA at 25-26, 34-37, 40-44.

¹⁰⁰NYNEX at 4. See also DMC at 6-7.

¹⁰¹CCPR at 5.

¹⁰²RCCMC at 8.

problems and that an increase therefore should not be implemented without further review.¹⁰³

EFJ's concern is totally unjustified. It provides no documentation supporting its claim. Nor could it provide any because the TIA/NSMA recommendation is consistent with U.S. and international standards and is designed to prevent interference:

TIA recommended that a common EIRP standard of +55 dBW be applied to point-to-point bands starting at 3.7 GHz. The transmit power of state-of-the-art digital microwave radios is typically 1 to 5 watts for the 4, 6, 10, and 11 GHz bands. In the 4 and 6 GHz bands, antennas ranging from 6 to 15 feet in diameter are available. In the 10 and 11 GHz bands, antennas from 2 to 12 feet are available.

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[T]he +55 dBW EIRP standard cannot be achieved in most frequency bands without reducing antenna sizes. Consequently, the +50 dBW EIRP standard will impact adversely reliability on long paths, where large antennas are required.

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In addition, microwave users will prefer the lower 6 GHz band over the upper 6 GHz band, since higher power is allowed in the lower 6 GHz band. This will contribute to an imbalanced use of the frequency bands. Setting a common +55 dBW EIRP standard will prevent these problems.

* * * * *

The EIRP standard is also a concern at 18, 23, and 38 GHz, due to the higher susceptibility of these frequency bands to rain outage and atmospheric absorption loss. The current EIRP standard is +55 dBW for the 18 GHz band. The standard is lower for the 23 and 38 GHz bands. TIA proposed that the same EIRP standard should be set for 18, 23, and 38 GHz bands to allow higher power and to improve path reliability. However, no changes in EIRP standards were proposed for the 12.2-13.25 GHz and 18.6-18.8 GHz bands.

¹⁰³EFJ at 3-4.

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The use of a +55 dBW EIRP standard is not unprecedented. For example, this same standard also is used in Part 25 of the Commission's Rules for determining terrestrial station frequency coordination distances in the 4, 6 and 11 GHz bands. In addition, this EIRP standard is in Title II, Appendix 28 of the ITU Rules and Regulations.¹⁰⁴

2. Antenna standards.

The Commission specifies its antenna standards in Section 101.115 and its polarization standards in Section 101.117. Such standards are essential to spectrally efficient fixed microwave operation. Thus, TIA and NSMA support adoption of these rules.

[T]he proposed Section 101.115 contains many of TIA's initial recommendations [to the Commission]. In Section 101.115, the Commission incorporates TIA's proposals that the Section 21.108 provisions be used to govern operation of antennas under Part 101 and it incorporates TIA's recommended modifications to the category B standards for the upper 6 GHz band.

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Changes to Sections 101.115 and 101.117 nevertheless are necessary. First, and most importantly, efforts must be made to update the Commission's 1983 definition for what constitutes a "congested area." Second, Section 101.115 must be revised to clarify that the antenna standards therein cover all fixed stations operating at 900 MHz or above and to clarify how antenna upgrade requests must be handled. Third, Section 101.117 must be revised to reflect that use of vertical or horizontal polarization, and not circular polarization, is the industry standard.¹⁰⁵

¹⁰⁴TIA/NSMA at 41-43. DMC requests that the Commission resurrect the transmitter output column because the output power values relate to the transmitter rather than to the system and should be part of the equipment authorization. DMC at 6-7. This request is unnecessary because only the EIRP values are needed in the rules to ensure proper operation, and because the output power value still is included on the license. WMC and ITA question the footnote to the Table in Section 101.113 that limits maximum power delivered to the antenna to -3 dBW. WMC at 6; ITA at 7. This limitation only applies to the 18,600-18,800 MHz band and is necessary because it protects other users, such as satellite licensees. See TIA/NSMA, Appendix A at A-63.

¹⁰⁵TIA/NSMA at 35 (footnote omitted).

There is no opposition to these proposals by the commenters. Comsearch, BellSouth and Pacific Bell agree with TIA/NSMA on the need to develop current criteria for determining if an area is congested and for governing antenna upgrades.¹⁰⁶ BellSouth agrees with TIA/NSMA that use of circular polarization must be restricted.¹⁰⁷ Thus, the Commission must adopt Sections 101.115 and 101.117, as revised by TIA/NSMA.¹⁰⁸

J. Operation and Maintenance Standards Are Needed.

Numerous parties agree with the Commission's proposal to delete specific operation and maintenance requirements for Part 101 licensees, but they recommend adopting a rule that defines a licensee's general responsibilities for operation and maintenance.¹⁰⁹ TIA/NSMA agree. However, they also recommend that Part 101 licensees be required to maintain records regarding these activities.¹¹⁰ This recommendation is set forth in the TIA/NSMA proposed new Section 101.213. Having such a record keeping requirement is consistent with the commenters' support for a rule specifying general operational and maintenance responsibilities instead of particular requirements.

¹⁰⁶Comsearch at 8-9; BellSouth at 8-9; Pacific Bell at 6-7.

¹⁰⁷BellSouth at 9.

¹⁰⁸TIA/NSMA propose changing one of the frequency ranges in the Section 101.115(c) Antenna Standards table from 1850-1990 MHz to 1850-2500 MHz. AT&T (at 5) and DMC (at 7-8) concur. ITA inquires why the maximum beam width and suppression for below 512 MHz are listed in Section 101.115(a). ITA at 7. TIA/NSMA agree and propose that these values should be deleted. See Appendix A-1.

¹⁰⁹NYNEX at 2; SBC at 2; AirTouch at 3; ALLTEL at 5; RCCMC at 3-4. TSGI and LOCATE still request that specific operation and maintenance requirements be included. TSGI at 7-8; LOCATE at 3.

¹¹⁰TIA/NSMA at 44.

CONCLUSION

In the NPRM, the Commission sets out the framework for the needed consolidation of Parts 21 and 94 into Part 101. TIA/NSMA join in the chorus of applause by the commenters for the Commission's efforts.

Nevertheless, more needs to be done. TIA and NSMA have provided the Commission with a comprehensive set of revisions to the rules proposed in the NPRM that is necessary to ensure that Part 101 is consistent with industry practice and expectations, is "user friendly," and will remain vital for the long-term.

Given the fact that many of TIA's initial proposals are in the NPRM; that the revisions in the Joint Comments are consistent with these proposals; and that there is near unanimous support for the consolidation of the technical rules into a single subpart and for the other kinds of changes made by TIA/NSMA in Appendix A-1, the Commission has no choice but to adopt Part 101 with these revisions. To do otherwise would ignore the clear